

What is claimed is:

1. A method of minimizing routing table size, comprising:

monitoring a packet in a flow sent by a router, to determine identifying information;

5 determining, in accordance with the monitored identifying information, whether any preferred routing information exists for the flow; and

if preferred routing information exists, sending updated routing tables to the router incorporating the updated routing information.

10 2. The method of claim 1, wherein the monitoring is performed by an IP flow monitor coupled to the router.

15 3. The method of claim 1, wherein the monitoring is performed by an IP flow monitor incorporated into the router.

20 4. The method of claim 1, wherein the monitoring includes monitoring a destination address of the packet.

25 5. The method of claim 1, wherein the monitoring includes monitoring an application type of the packet.

6. The method of claim 1, wherein the monitoring includes monitoring a type of service field of the packet.

25 7. The method of claim 1, wherein the monitoring includes monitoring a protocol type of the packet.

8. The method of claim 1, wherein the monitoring includes monitoring a port number of the packet.

9. The method of claim 1, wherein the monitoring includes monitoring a source IP address of the packet.

10. The method of claim 1, wherein the monitoring includes monitoring diffserv bits of the packet.

11. The method of claim 1, wherein the determining whether any preferred routing information exists for the flow includes looking the identifying information up in a table of preferred path information.

12. The method of claim 1, wherein the determining whether any preferred routing information exists for the flow includes looking the identifying information up in a table of preferred path information stored on a local IP route comparator.

13. The method of claim 1, wherein the determining whether any preferred routing information exists for the flow includes looking the identifying information up in a table of preferred path information stored on a remote IP route comparator.

14. The method of claim 1, wherein the determining whether any preferred routing information exists for the flow includes looking the identifying information up in a table of preferred path information stored on a remote database.

15. The method of claim 1, wherein sending updated routing tables to the router incorporating the updated routing information includes sending the updated routing information to a local IP route injector.

16. The method of claim 1, wherein sending updated routing tables to the router incorporating the updated routing information includes sending the updated routing information to a remote IP route injector.

17. The method of claim 1, wherein sending updated routing tables to the router incorporating the updated routing information includes sending, by an IP route injector, a BGP update message to the router in accordance with the updated routing information.

5 18. The method of claim 1, wherein the router uses a BGP routing method.

19. The method of claim 1, wherein the packet is sent by an end system.

20. The method of claim 1, wherein the packet is received by an end system.

10 21. The method of claim 1, wherein the updated routing information causes the next packet to be sent over a preferred connection in reaction to the updated routing information.

15 22. The method of claim 1, further including updating a routing table of the router in accordance with the updated routing information.

23. The method of claim 1, further including routing a second packet of the flow in accordance with the updated routing information so that the second packet of the flow is routed over a preferred connection.

20 24. The method of claim 1, wherein the preferred routing information refers to a preferred connection from the router for the flow to which the packet belongs.

25 25. The method of claim 1, further including caching the identifying information to avoid having to determine whether other packets in the flow have updated routes.

26. The method of claim 1, further including receiving the identifying information by a cache and determining whether the identifying information has been monitored before.

27. The method of claim 1, further including sending from an IP route comparator to a cache, the fact that the identifying information has been considered by the IP route comparator and does not need to be considered again.

5 28. The method of claim 1, wherein a preferred path is a subnet assigned to a specific path.

29. A system that minimizes routing table size, comprising:

10 apparatus configured to monitor a packet in a flow sent by a router, to determine identifying information;

apparatus configured to determine, in accordance with the monitored identifying information, whether any preferred routing information exists for the flow; and

apparatus configured to, if preferred routing information exists, send updated routing tables to the router incorporating the updated routing information.

15 30. An IP flow monitor that minimizes routing table size, comprising:

apparatus configured to monitor a first packet in a flow sent by a router, to determine dataflow identifying information and to send that dataflow identifying information to an entity containing preferred routing information for the identified dataflow; and

apparatus configured to receive updated routing tables incorporating updated preferred routing information for the dataflow.

20 31. A route comparator, comprising:

25 apparatus configured to receive a first packet in a dataflow, the first packet containing identifying information;

apparatus configured to determine, in accordance with the identifying information, whether any preferred routing information exists for the flow; and

apparatus configured to, if preferred routing information exists, direct the sending of updated routing tables to the router incorporating the updated routing information.

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32. The route comparator of claim 31, further comprising:

a destination info cache to determine whether the identifying information in the first packet has already been seen by the route comparator.

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